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ABSTRACT

In 1984 the Texas legislature passed an educational reform bill, House Bill 72 (HB 72). The prime objective of HB 72 was to achieve greater equalization of the state's school finance system; it was intended to affirm vertical and horizontal equity and equal opportunity/wealth neutrality as goals of the state system. This study analyzes the results of HB 72's mandated fiscal changes and evaluates the extent to which the equalization objectives were achieved during the 1984-85 school year. The study also evaluates HB 72 to determine if, and to what extent, vertical and horizontal equity and measures of equal opportunity equalized public school finance in Texas. The study found a 743 percent variation in per-pupil revenues across state districts and a continuing strong correlation of district wealth and district revenue per student. This indicates that varying local economic factors still play a large part in determining the level of resources available to students. The goal of financing education through state revenue sources (interpreted as a minimum 50-percent state share of total revenues) seems to have been reached during the 1984-85 school year. The question of why equity has not yet reached acceptable levels was not addressed in this study and is a prime topic for further research. Included with the paper are seven tables of statistical data, two graphs, and a short list of references. (MD)

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# SCHOOL FINANCE EQUALIZATION: PROGRESS IN TEXAS?

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Presented at the Annual Meeting of the
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In June of 1984, the Texas Legislature convened in a special session, called expressly to deal with educational reform. Within 30 days, the lawmakers had passed House Bill 72, a package of programatic and fiscal reform unrivaled in magnitude since the establishment of the state's minimum foundation school program in 1949. The passage of such massive educational reform legislation was accomplished within an environment of both national and state pressure on the educational establishment. These pressures for reform had awakened citizen interest in public education to such an extent that legislative action had become a public mandate.

In the state of Texas, reform encompassed a long list of measures concerning educational governance and management, the instructional program, and school finance equalization. With such massive reform involved, one might be hard-pressed to delineate any priorities, but insiders to the legislative process will acknowledge that the prime objective of HB 72 was to achieve greater equalization of the state's school finance system. The purpose of the research study reported in this paper was to analyze the results of HB 72's mandated fiscal changes and to determine the extent to which that equalization objective has been achieved. In addition, the study suggests several factors which could be contributing to current inequities. Further research on these factors can provide data on which to base recommendations for funding alternatives and formula model changes that could bring about even higher levels of financial equity for the school children, and, by extension, the school districts and taxpayers of the state of Texas.

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## Pressure for Reform in Texas

The state of Texas, like other states, has experienced the concerns and pressures of the various educational reform movements during the past four years. A "report card" of data on the performance of state educational systems was released by the U.S. Secretary of Education, T. H. Bell on January 5, 1984, and Texas officials were again dismayed to learn that the state ranked very near the bottom on almost all of the components listed--expenditures per pupil, expenditures as a percent of per capita income, average teacher salary, average scores on the SAT, and graduation/dropout rate (U.S. Department of Education, 1984). And, with Texas' growing economic prosperity increasingly dependent upon the attraction of high-tech industry to the state, the pressures to assure the presence of an adequate pool of high-quality high school and college graduates have also grown. Many school administrators and legislators had become increasingly concerned about the escalating costs -- to the state and to local districts -- of the "personnel unit" system of distributing foundation program aid to school districts. Several were calling for a return to a "sum-certain" rather than a "sum-sufficient" funding system. Thus, parents, taxpayers, business leaders, and professional educators had begun to clamor for educational reform.

Educational reform is not a new legislative concern in the state. During the litigation of the now-famous Rodriguez case in the early 1970's, state lawmakers began to seriously address the need to improve the equity of the state's school finance system. Despite the Supreme Court's 1973 ruling in favor of the state--declaring that the state's finance system was in apparent need of reform, but not unconstitutional--state legislative action brought major fiscal reform in 1975 with the passage of House Bill 1126. However, subsequent legislation passed in 1977 all but reversed any equity gains achieved by the 1975 law.

The current governor, Mark White was elected on a strong education platform--and with the decisive support of the state's teachers--in November of 1982. When his promise of 24% teacher pay increases failed to materialize after an unsuccessful battle with the House and Senate leadership during the regular session of the 68th Legislature in 1983, the Governor appointed a "blue

ribbon" citizen task force, headed by computer magnate and billionaire H. Ross Perot of Dallas, to analyze the issues and come up with recommendations to be acted upon in a special legislative session to be called after the committee's report had been completed.

Governor's Select Committee on Public Education

The governor's intentions of building a grass-roots groundswell of demand for the teacher pay raises through the work of the task force were quickly overshadowed by Mr. Perot's own agenda. H. Ross Perot's previous track record had been impressive. During the 1981 legislative session, his leadership in the privately-funded Texans' War on Drugs was credited for the swift enactment of tougher anti-drug laws in the state. Following his appointment as chairman of the Governor's Select Committee on Public Education, his well-known "commando" tactics and sizeable personal fortune were brought to bear on the entire arena of educational reform in Texas. The "Perot Committee" made its sweeping recommendations for both programatic and fiscal changes in the state's educational system in April of 1984, after almost a year of intensive study and discussion. Perot himself, along with an impressive staff of assistants and lobbyists, began an immediate campaign effort across the state to push for legislative action on the proposals. Educational reform became a front-page issue in Texas.

Pending litigation

In May of 1984, a significant law suit was filed in the District Court of Travis County, Texas by lawyers from the Mexican American Legal Defense and Education Fund (MALDEF) (Edgewood v. Bynum, 1984). In what many are referring to as "Rodriguez II", the plaintiffs' attorneys, representing eight property-poor, predominantly Mexican-American school districts and 23 individuals, petitioned the court to act to remove the inequities of the state's school finance system. The suit, the potential filing of which had been rumored for more than a year, unquestionably was seen as a serious threat to the status quo. Perceptions about the possible success of the plaintiff's case increased the pressure on the legislature to take action. [NOTE: At the time of this writing, the

case had not yet come to trial. An amended brief, filed by the plaintiffs on March 5, 1985, alleges continuing inequities that have not been eliminated by the reforms of House Bill 72.]

## House Bill 72

It was within that environment of legal, philosophical and political disquiet that Governor White called the 68th Texas Legislature into special session beginning June 4, 1984, with a mandate to deal with educational reform issues. The result of the thirty-day session was an historic piece of legislation for the state of Texas and its educational enterprise -- House Bill 72 (hereafter referred to as HB 72). For the first time since the passage of HB 1126 in the 1975 legislative session, the state's school finance system was completely re-formulated. Rather than flowing funds to districts based on the previous personnel unit system, the new funding model uses a weighted program system. Adjustments to the basic per pupil allotment ($1290 for the 1984-85 school year, $1350 for 1985-86) are made for students in special education (weights ranging from 2.0 to 10.0, depending on instructional arrangement), compensatory education (weight of 1.20), vocational education (weight of 1.45), and bilingual education (weight of 1.10).

Differences in costs are recognized and provided for through formula adjustments for small and sparse districts and through a Price Differential Index (PDI). Allotments for experienced teachers, educational improvement and career ladder pay supplements, transportation, and enrichment equalization are also designated. Equalization aid includes, for the first time, a formula multiplier to adjust for local district tax effort. The local share of the foundation program, known as the Local Fund Assignment (LFA), is increased and reformulated. The LFA, formerly calculated on the basis of $.11 per hundred dollars of district property valuation, is now computed by determining 30 percent of the total cost of the state's Foundation School Program and assigning each district its share based on its proportion of the state's aggregate taxable property wealth. In order to provide more accurate information upon which to base formula calculations, district property wealth figures must now be updated on an annual basis.

Although a minimum aid provision from prior law was eliminated, an equalization transition aid proviso allows temporary "hold harmless" protection for districts losing state aid under the new formulas. The provision of these off-setting funds will be phased out after three years. All of these changes in the funding formulas, coupled with approximately 2.9 billion new dollars appropriated for education for 1984-1987 through the elimination of certain sales tax exemptions, increasing the state sales tax rate, and increasing taxes or fees for car licensing, motor fuel, motor vehicle sales, cigarettes and liquor, have resulted in a marked increase of state revenue allocated to property-poor school districts.

In addition, minimum beginning teachers' salaries were increased substantially in HB 72. A one-line salary schedule for all professional school personnel was adopted to replace the previous 18 pay-grade compensation plan, a four-level teacher career ladder was initiated to provide from $2000 to $6000 in annual pay supplements, the current 27-member elected State Board of Education was abolished in order to be replaced with a transitional appointed board of 15 members, competency testing for all current teachers and administrators was mandated, and a wide variety of measures designed to achieve instructional program excellence and educational accountability on the part of school boards, administrators and teachers were enacted. A ten-member Legislative Education Board was established to oversee and review the implementation of the legislative education policy, including fiscal policy, and increasing control of the state's education system was given to the State Board of Education.

## Design of the Study

In defining the concept of equity to be addressed in this study, three questions, based on the work of Berne and Stiefel (1979), were addressed:

1) Who should be the recipient of equitable treatment?

2) What object(s) should be chosen for equitable division or distribution?

3) How should equity be viewed, i.e., which principle(s) of equity should be applied to the chosen object(s)?

As recipients of equity, both children and taxpayers can be target groups. Many of the issues related to equity for children, especially those of equal opportunity and wealth neutrality of finance systems, are closely tied to concerns for taxpayer equity. However, in delimiting the research topic, the study was focused on the perspective of equity for children.

While inputs, outputs, and outcomes are all possible objects for equitable division or distribution, inputs in the form of revenues have been chosen for examination in this research. Although revenues were selected because of utility in delineating their source (local, state, federal), these monetary inputs were also scrutinized in terms of purposes for which they are expended (current operating expenditures, debt service).

Principles of horizontal equity, vertical equity and/or equal opportunity can be applied to the selected object--revenues per pupil--in order to determine whether or not it is distributed fairly. The nature of the data available at the time of this study made it impossible to accurately assess the vertical equity picture in the state of Texas. However, both horizontal equity and equal opportunity principles were used as standards around which the research questions were framed.

With the answers to the Who?, What?, and How? questions determined, the fourth tier of the conceptual framework could be identified. To deal with this level, it was necessary to answer the question, "What quantitative measures should be used to assess the degree of equity? Following a review of measures available for assessing both horizontal equity and equal opportunity, the measures detailed below were selected.

## Measures of Horizontal Equity

The measures of equal treatment of equals (horizontal equity) are univariate statistics that assess the dispersion or spread in the distribution of revenues per pupil. The smaller the variation in the distribution of revenues per student, the greater the degree of horizontal equity. Perfect horizontal equity would require that equal pupils in the distribution receive equal revenues. Measures chosen were:

(1) The Range--the difference in dollars between the highest and lowest observation of per-pupil revenue. The higher the measure, the greater the disparity that exists. The lower the difference, the closer to equity.

(2) The Range Ratio--the difference in per-pupil revenue between the lowest and the highest district, expressed as a ratio; or, the Range divided by the lowest per-pupil revenue value. The closer the ratio is to 1, the closer to equity.

(3) The Restricted Range--the difference in dollars between two points in the distribution, specifically the 5th and the 95th percentiles. The lower the value of the restricted range, the closer to equity.

(4) The Federal Range-Ratio renamed the "Restricted Range Ratio"--the difference in per-pupil revenues at the 5th and 95th percentiles expressed as a ratio; or, the Restricted Range divided by the value at the 5th percentile. The closer the ratio is to 1, the more even the distribution of revenues and the closer to equity. This measure is used in federal guidelines to calculate horizontal equity of expenditures. In federal regulations, any disparity greater than 25 percent is considered unacceptable.

(5) The Coefficient of Variation- the standard deviation divided by the mean. The smaller the coefficient (as it approaches zero), the less variability exists and the closer to equity.

(6) The Gini Coefficient--shows how far the distribution of revenues is from providing each proportion of students with the same proportion of revenues; e.g., 10% of the students receiving 10% of the revenues. This measure, used frequently in school finance research, is a concentration ratio (based on the distribution of two variables) that provides a mathematical interpretation of the Lorenz curve. In drawing the Lorenz curve, pupils are plotted in ascending order of per pupil revenue. Thus the curve will almost always lie on or below a 45 degree diagonal of perfect equity. The farther below the diagonal the curve lies, the greater the inequity. The value of the Gini coefficient, representing the ratio of the area between the 45 degree line of perfect equity and the Lorenz curve to the entire area between the 45 degree line and the x and y axis, may range from 0 to 1.

Measures of Equal Opportunity

The tests for equal opportunity are those which assess the concept of wealth neutrality which was proposed by Coons, Clune, and Sugarman (1970) and which has formed the basis of several court rulings on school finance cases in the last decade. Measures of the equal opportunity principle, therefore, are essentially relationship measures where perfect equity is defined as the absence of a relationship between per-pupil revenue and per-pupil wealth. Regression-based measures are the most commonly used guages of equal opportunity in school finance because they are based on validated statistical principles and because there are several possible measures that can be derived from the regression analysis. Measures chosen were:

(1) The Correlation Coefficient measures the degree to which two variables are related and as such, provides a test for linearity. The Pearson's correlation coefficient (r) ranges from -1 to 1, with a value of 1 indicating a perfect positive relationship, and a value of -1 indicating a perfect negative relationship. As a measure of equal opportunity, a correlation coefficient of 0 shows perfect equity, and a value of 1 signifies the most inequitable case.

(2) The Simple Slope is a measure designed to assess the magnitude of the relationship between per-pupil revenue and per-pupil wealth for each district by showing the size of the change in the dependent variable (per-pupil revenues) associated with a one-unit change in the independent variable (per-pupil property values). As a test of the equal opportunity principle, a slope of 0 is equated with equity; for positive slopes, the higher the value, the more inequitable the relationship.

(3) The Simple Elasticity, like the slope, measures the magnitude of the relationship between the dependent and independent variables. But, elasticities are presented in terms of percentage changes rather than in the absolute unit changes reflected in the slope. When used as an equal opportunity measure, an elasticity of 0 is equitable, with inequity increasing as the elasticity increases.

## Research Questions and Methodology

In order to determine if, and to what extent, the objective of HB 72 to equalize the public school finance system in the state of Texas has been achieved, the following research questions were addressed:

1. What changes in equalization of the state's public school finance program during 1984-85 have resulted from the passage of HB 72 when compared with prior law? Specifically:

    1.1. How much disparity in revenues existed across all districts in Texas in 1983-84 and 1984-85? The range, range ratio, restricted range, restricted range ratio, and coefficient of variation were computed for the 1983-84 and 1984-85 school years. The Gini coefficient was also calculated, and the Lorenz curve graphed, for 1983-84 and 1984-85. All measures were computed first with, and then without debt service revenue.

    1.2. How much improvement, if any, in decreasing revenue disparity is observed for 1984-85 over 1983-84? The values obtained for 1.1 were used to calculate percentages of change from 1983-84 to 1984-85. These percentages, along with actual values, were analyzed to determine if improvements have occurred.

    1.3. How much do the variables of district property wealth, tax effort, size (ADA, percent disadvantaged students, and percent minority students account for the variation in revenue per student?) Scatterplots and a multiple stepwise regression were computed for 1983-84 and for 1984-85, using general operating fund revenues per student as the dependent variable, and the following as independent variables: log of property wealth per ADA, log of size (ADA), maintenance and operation tax effort, percent students on free and reduced lunch, percent Anglo students, percent Hispanic

students, and percent Black students. Logarithmic transformations of wealth and ADA were used to diminish the effects of extremes in each of those two data sets. General operating fund revenue includes all formula-based state aid and all local revenue except debt service.

1.4. What level of wealth neutrality existed across all districts in 1983-84 and 1984-85? The bivariate regression, with scatterplots, was computed for 1983-84 and 1984-85 to produce the simple correlation coefficient (Pearson's r), slope and elasticity. The dependent variable was revenue per student, calculated first with, and then without debt service revenue. The independent variable was property wealth per ADA.

1.5. Did the level of wealth neutrality improve from from 1983-84 to 1984-85? If so, how much? Values produced for 1.3 and 1.4 were analyzed for changes of direction and size.

2. What effect does the inclusion of debt service funds in total revenues have on measures of both horizontal equity and wealth neutrality? Values calculated with and without debt service revenue for 1.1, 1.2, 1.4 and 1.5 were analyzed to determine the effect of this special revenue category on equity both before and after the passage of HB 72.

3. Who were the "winners" and "losers" in the reallocation of financial aid resulting from HB 72 ? Average percent change (+ or -) in state revenue and total revenue from 1983-84 to 1984-85 were calculated for districts categorized by nine ADA (average daily attendance) groupings, wealth deciles (all wealth per pupil figures for 1983-84, ranked from low to high with districts divided into ten equal groupings), and seven setting groupings (urban, rural, etc.).

Data Sets

Three basic data sets were required for computation of most of the above-listed measures. They

were: pupil count, district wealth, and district revenue. As of the 1984-85 school year, there are 1098 public school districts in the state of Texas, 1068 of which were included in the analyses for this study. The remaining 30 districts include six special statutory districts, and 24 state administered districts (encompassing state schools for a variety of handicapping conditions and the schools in the state's prison system).

Although only one observation per district was entered into the calculations when wealth and revenue factors were analyzed, the district was not the unit-of-analysis in this study. Rather, each district's revenue and wealth values were weighted by the pupil count for that district, thus rendering the pupil as the unit-of-analysis for this research.

Pupil count. Pupil count was operationalized as Average Daily Attendance (ADA). For the 1983-84 school year, ADA was a "refined" ADA figure composed of the average ADA for the best five of six six-week reporting periods in each district. Since final ADA data for the 1984-85 school year were not available at the time of this study, preliminary ADA values, reported to the Texas Education Agency (TEA) by each district in October, 1984 were used in the computation of measures for this school year.

It must be noted, however, that for several school districts in the state, particularly those which typically enroll large numbers of migrant children during each school year and those with rapidly growing student populations, the fall ADA count will be considerably lower than their final refined ADA. Spring enrollment and attendance are generally higher for these districts, so preliminary figures on FSP revenues, which are based on ADA, are likely to be underestimated in comparison to actual revenues to be received. This underestimation can affect horizontal equity measures, making any improvement from 1983-84 to 1984-85 seem smaller than it may be in actuality. Because many of the districts that fall into this category are also low-property-wealth districts, wealth neutrality measures may also be affected in the same manner.

District wealth. Wealth values for the 1982-83 and 1983-84 school years were the State Property Tax Board (SPTB) index 2 values used in calculating state aid for those years. These values, which provide STPB estimates

of district property value, minus all authorized exemptions and calculated production value of open land, were certified by the SPTB from surveys done as of January, 1979 and January, 1981, respectively. Index 2 values do not represent the actual assessed valuation figures used by the county appraisal districts in certifying tax rolls, but they are equalized across districts to reflect 100% market value.

District property wealth values for 1984-85 were those reported to the Texas Education Agency by the SPTB from its most recent update (January, 1985) of the January 1983 property value survey. Although these figures were undergoing final appeals at the time of this study, and do not represent the values upon which final calculations of state aid will be made for the 1984-85 school year, they are very close to the final values.

District revenues. District revenue figures used in this study were computed by adding state and local revenues. Federal revenues acquired by districts were not included in this research. Revenue data for the 1984-85 school year were reported in price-adjusted dollars, since the new funding formulas created with the enactment of HB 72 call for adjustment of the basic per-pupil allotment by a price differential index (PDI). Revenue for 1983-84 was included without price-adjustments.

State aid revenue figures for both years represent Foundation School Program (FSP) funds distributed to school districts. These FSP funds include the state's share of the minimum foundation program entitlements plus add-ons that can be calculated by formula. Data on FSP revenues for 1983-84 were retrieved from Texas Education Agency records of actual dollars received by districts for that fiscal year. Figures on FSP revenues for 1984-85 represent the Texas Education Agency's most current (January, 1985) estimate of final aid amounts to be received by districts, based on current SPTB-reported property values (see above) and ADA figures reported to the Agency from October, 1984.

Local revenues included for the 1983-84 school year were total revenues actually received from the local district's tax levy for maintenance and operation (M & O), and from other sources (investment income, athletic and cafeteria receipts, fees, etc.). Debt service revenue was also included, but it was based on the tax levy itself, rather than on actual collections. Total local revenue

figures for the 1984-85 school year were estimates of total local revenues to be collected from the M & O tax levy, and from other local sources. Debt service revenue was included as the reported levy, not estimated revenue collections.

## Summary of Research Results

In summarizing the results of measures of equity used to answer the eight research questions, it is important to re-emphasize the preliminary nature of the values on wealth, revenue and pupil count that were used in the 1984-85 calculations. Although it is anticipated that differences will be slight between values used in this study and final official values to be used by the state in calculating and distributing state aid for 1984-85, some changes in the equity measures could result if the methodology used for this research were to be repeated at a later date.

1.0 What changes in equalization of the state's public school finance program during 1984-85 have resulted from the passage of HB 72 when compared with prior law? In order to answer this question, the answers to questions 1.1 through 1.5 must be evaluated:

1.1 How much disparity in revenues existed across all districts in Texas in 1983-84 and 1984-85? Table 1 presents information generated from the range, range ratio, restricted range, restricted range ratio, coefficient of variation and Gini coefficient. The measures indicate a mixed picture with regard to revenue disparity. When only the top and bottom districts or portion of districts--as ranked from low to high by revenue per ADA--are viewed, the disparities in available revenues are enormous--over $18,000 for 1983-84 and $14,000 for 1984-85. Even the restricted range shows a disparity of over $4000, producing a restricted range ratio of 1.75 to 1.81 (175 to 181 percent) for 1984-85. When all districts are compared to each other in the computation of the Gini coefficient, disparities do not seem as large--only .091 to .133 out of a possible 1.00.

The restricted range, which looks at per-pupil revenues at the 5th and 95th percentile, provides a clear picture of the influence of the many small, high-revenue districts in the state upon the range and range ratio

TABLE 1 Measures of Horizontal Equity of Per-Pupil Revenue

| | 1983-84 | | 1984-85 | |
|---|---|---|---|---|
| | w/debt $ | w/o debt $ | w/ debt $ | w/o debt $ |
| RANGE | $18,572 ($1608 to $20,180) | $18,675 ($1505 to $20,180) | $14,462 ($2061 to $16,523) | $14,563 ($1960 to $16,523) |
| RANGE RATIO | 1155% | 1240% | 702% | 743% |
| RESTRICTED RANGE | $5028 ($1968 to $6996) | $4578 ($1843 to $6421) | $4433 ($2526 to $6959) | $4282 ($2367 to $6649) |
| RESTRICTED RANGE RATIO | 255% | 248% | 175% | 181% |
| COEFFICIENT OF VARIATION | 53.02 | 54.82 | 40.88 | 42.16 |
| GINI COEFF. | .133 | .127 | .096 | .091 |

Ancilliary Data

| | | | | |
|---|---|---|---|---|
| STATE AVERAGE PPR [a] | $2836 | $2621 | $3139 | $2913 |
| MEAN PPR [b] | $3380 | $3175 | $2816 | $3599 |
| ST. DEV. | $1792 | $1740 | $1560 | $1517 |

[a] Total state and local revenues ÷ Total state ADA

[b] Total per-pupil revenues for each district ÷ 1068

measures. While the district at the 5th percentile is an average of 22 percent greater than the lowest per-pupil revenue district, the district at the 95th percentile is, on the average, 172 percent lower than the highest district. The state of Texas has 143 school districts with over one half million dollars in taxable wealth per student, 45 percent of which have over one million dollars in per-pupil wealth. Of these 143 districts, 104 (just under 10 percent of the total districts in the state included in this study) have less than 500 students in average daily attendance. Data reported later in this summary will show that there is a strong relationship between wealth and revenue.

1.2 How much improvement, if any, in decreasing revenue disparity is observed for 1984-85 over 1983-84? Table 2 shows that all horizontal equity measures indicate that the disparity in per-pupil revenue has decreased in 1984-85, following the passage of HB 72. The range and the coefficient of variation indicate similar improvements of 22 and 23 percent in one year's time. The restricted range indicates greater disparity decreases when debt service revenue is included in its computation. Figures 1 and 2 show improvements in revenue disparity depicted by the Lorenz curves. The Gini coefficient, which quantifies the change indicated by the positioning of the two curves, indicates as much as a 40 percent improvement of 1984-85 disparities over those in 1983-84.

Table 2 also indicates that both state average per pupil revenue and mean per pupil revenues increased, at rates of 11 and 13 percent respectively. Table 3 shows changes in state aid and total revenues received by districts from 1983-84 to 1984-85. It would seem that if there is a strong relationship between a district's wealth and its level of revenues per pupil (as is shown to be true in Tables 4 and 5), then increases in revenues shown by wealth deciles in Table 3 should account for some of the decrease in revenue disparity. Higher levels of funding, perticularly for compensatory education, coupled with more equalized apportioning of the costs of the Foundation School Program between state and local districts have contributed to the 42 percent increase in revenue for districts in the lowest wealth decile as compared to the 5 percent increase for districts in the top 10 percent of wealth per student.

Increased local responsibility for raising funds for the basic program, especially for districts of high

TABLE 2 Percent Change in Measures of Horizontal Equity 1983-84 to 1984-85

| | w/ debt $ | w/o debt $ |
|---|---|---|
| RANGE | -22% | -22% |
| RESTRICTED RANGE | -12% | - 6% |
| COEFFICIENT OF VARIATION | -23% | -23% |
| GINI COEFF. | -40% | -39% |
| **Ancilliary Data** | | |
| STATE AVERAGE PPR[a] | +11% | +11% |
| MEAN PPR[b] | +13% | +13% |
| ST. DEV. | -15% | -15% |

[a] Total state and local revenues ÷ Total state ADA

[b] Total per-pupil revenues for each district ÷ 1068

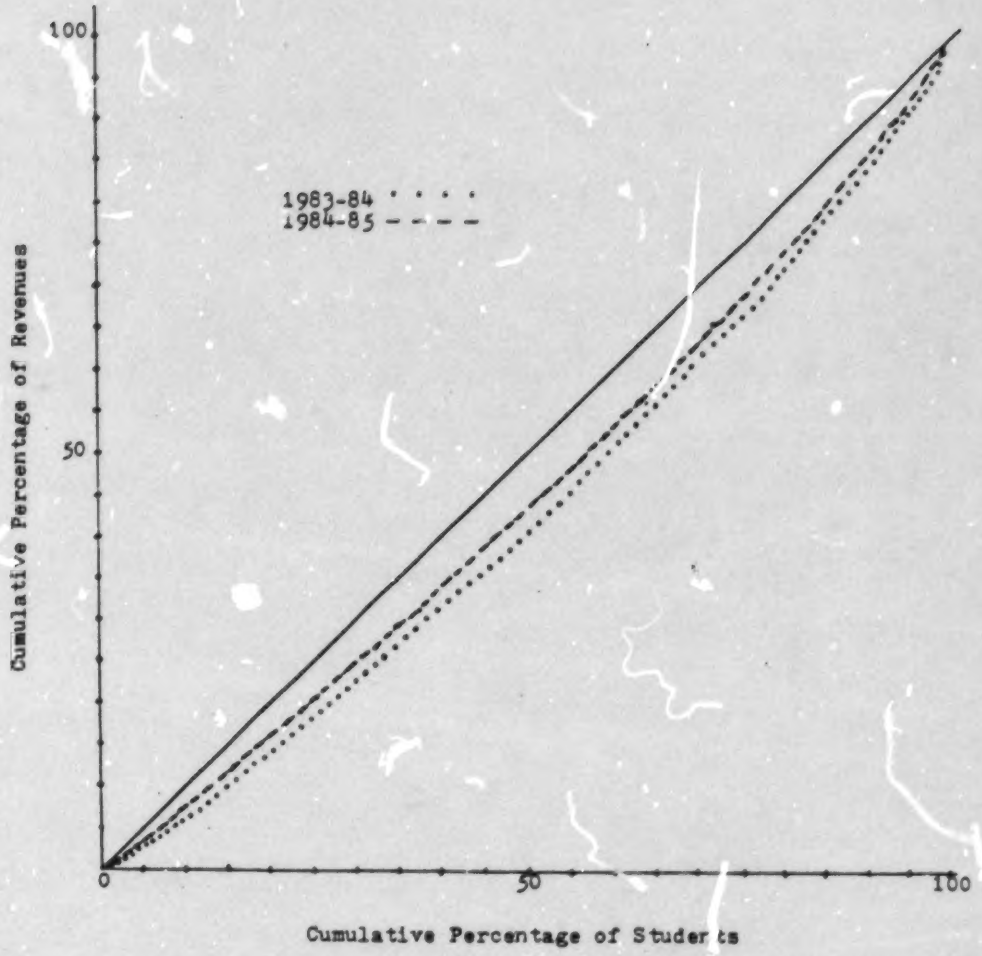


Figure 1 Lorenz Curves for 1983-84 and 1984-85 using revenue including debt service

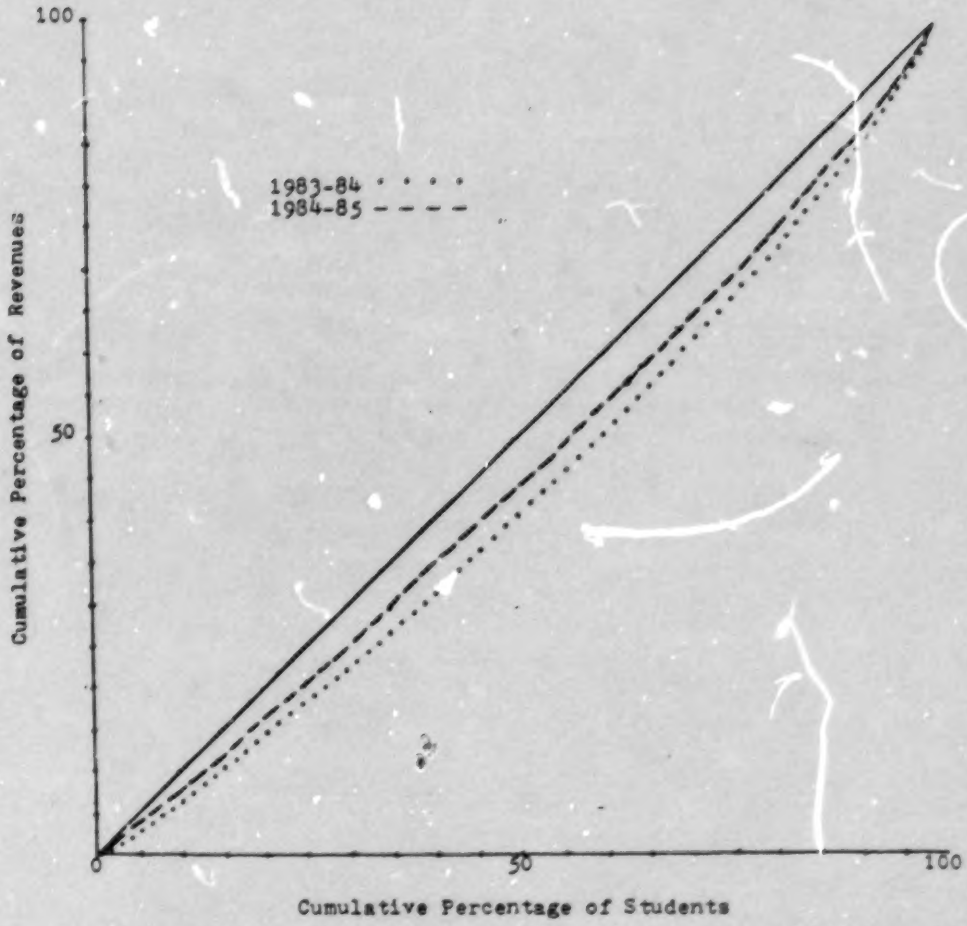


Figure 2 Lorenz [illegible] for 1983-84 and 1984-85 using [illegible]ue excluding debt service

TABLE 3 Percentage Change in State Aid and Total Revenue from 1983-84 to 1984-85

| By ADA Groupings | % Change in State Aid | % Change in Total Revenue[a] |
|---|---|---|
| Over 50,000 | +16% | +13% |
| 25,000 to 49,999 | +20 | +19 |
| 10,000 to 24,999 | +20 | +17 |
| 5,000 to 9,999 | +34 | +20 |
| 3,000 to 4,999 | +22 | +17 |
| 1,600 to 2,999 | +21 | +16 |
| 1,000 to 1,599 | +35 | +20 |
| 500 to 999 | +48 | +25 |
| Under 500 | +40 | +21 |
| **By District Type** | | |
| Major Urban | +21% | +15% |
| Other Central Cities | +22 | +15 |
| Suburban-Fast Growing | +25 | +21 |
| Suburban-Stable | +19 | +16 |
| Non-Metro with 1000+ ADA | +22 | +16 |
| Non-Metro with Town | +43 | +22 |
| Rural | +44 | +23 |
| **By Wealth Deciles** | | |
| Lowest | +51% | +42% |
| 2nd | +43 | +30 |
| 3rd | +40 | +26 |
| 4th | +31 | +21 |
| 5th | +21 | +16 |
| 6th | +22 | +18 |
| 7th | +13 | +12 |
| 8th | + 1 | + 8 |
| 9th | - 1 | + 8 |
| Highest | -25 | + 5 |
| Total Change in: | | |
| STATE AID | +24% | |
| LOCAL REVENUE[b] | +11% | |
| TOTAL REVENUE[a] | +17% | |

[a]including state aid and local revenue without debt $

[b]without debt service revenue

wealth, may have limited the amount of tax dollar revenues available for local leeway or "enrichment" expenditures that some districts have enjoyed in the past. This limitation may have slowed, or even eliminated, increases in per-pupil revenues for districts in the upper part of the revenue range. This phenomenon, coupled with increases in per-pupil revenues for districts at the bottom of the range, may also account for the disparity decreases between 1983-84 and 1984-85.

Since 1983-84 district wealth values reflect State Property Tax Board assessments from 1981, state aid in 1983-84 may have favored wealthier, rapidly growing districts who profited from the "lag time" between 1981 and 1983. With property valuations updated and the "lag time" reduced for 1984-85, it is possible that some of the improvement in horizontal equalization for children is as much a product of inflation, improved property assessments, and increased property wealth valuations, and as of funding formula revisions.

1.3 How much do the variables of district property wealth, tax effort, size (ADA), percent disadvantaged students and percent minority students account for the variation in revenue per student? Four variables--log of wealth, log of ADA, maintenance and operation tax rate, and percent Hispanic students--had F statistics significant at the .15 level for entry into the regression model. These four variables, depicted in Table 4, explain a total of 65 to 67.5 percent of the variation in revenue per ADA for the two years of the study. This leaves approximately one-third of the variation unexplained by variables selected for this research. Of the variation that is explained, by far the largest amount--53 to 60 percent--is explained by the log of wealth, although log of size (ADA) and percent Hispanic students have more explanatory power during the year after the passage of HB 72 than in the year before. The increased explanatory power of the log of ADA in 1984-85 could well have resulted from the HB 72 formula changes which rely more heavily on ADA weights in distributing state aid than did formulas under prior law.

The multiple correlation coefficients (Multiple R) are also listed on Table 4. In both years, the degree of correlation is high at all levels of variable addition to the model. The four variables together produce a positive correlation of .81 for 1983-84, and .82 for 1984-85. For both years, the bivariate correlations that exists when

TABLE 4 Regression-Explained Variance in Revenue[a] per ADA Related to Selected Variables

| | Multiple R | $R^2$ | $R^2$ change |
|---|---|---|---|
| 1983-84 | | | |
| with Log of Wealth | .78 | .603 | |
| adding Log of ADA | .80 | .636 | .033 |
| adding M&O Tax Rate | .81 | .648 | .012 |
| adding % Hispanic | .81 | .652 | .004 |
| 1984-85 | | | |
| with Log of Wealth | .73 | .534 | |
| adding Log of ADA | .70 | .627 | .093 |
| adding % Hispanic | .81 | .659 | .032 |
| adding M&O Tax Rate | .82 | .675 | .016 |

[a]Revenue without debt service included

only the first independent variable is entered into the regression model shows that there is a high degree of relatedness between log of wealth per ADA and revenue per ADA. The relationship between these two variables shows a decrease in strength from 1983-84 to 1984-85, dropping from .78 to .73.

1.4 What level of wealth neutrality existed across all districts in 1983-84 and 1984-85? Results of regression analysis and computation of correlation and elasticity coefficients, presented in Table 5, indicate that the relationship between a district's wealth per student and its revenue per student is strong in both years, but not large. Correlation coefficients for the simple regression indicate a relationship between wealth and revenue that is not as strong as the relationship indicated in the multiple regression (Table 4), which used log of wealth as an independent variable.

The slope and elasticity values provide some indication of the magnitude of the relationship between revenue and wealth. For every dollar increase in wealth per pupil, revenue per pupil increases 1/10th of a cent in all four calculations. Elasticity values reveal that a one percent change in wealth per ADA is associated with increases in revenue per ADA of .08 to .10 percent. Values for both the slope and the elasticity are representative of a relationship of low magnitude.

1.5 Did the level of wealth neutrality improve from 1983-84 to 1984-85? If do, how much? Correlation coefficients shown in Tables 4 and 5 present a conflicting picture of the direction of change in the strength of relatedness between the variables of wealth per student and revenue per student from 1983-84 to 1984-85. A smaller correlation coefficient for 1984-85, produced when using the log of wealth per pupil as an independent variable in the regression, shows improvement. By comparision, larger 1984-85 correlation coefficient values, produced from regressions with wealth per pupil used as the independent variable, show a weakening of wealth neutrality.

Because of these conflicting results, it is difficult to say with any assurance that wealth neutrality is deteriorating or improving, unless one places a value judgment on which of the two independent variables, wealth or log of wealth, most accurately reflect the state's finance system. Regardless of the conclusion with regards to the direction of the change in wealth neutrality in the

TABLE 5 Measures of Wealth Neutrality

| | 1983-84 | | 1984-85 | |
|---|---|---|---|---|
| | w/debt $ | w/o debt $ | w/debt $ | w/o debt $ |
| CORRELATION COEFF. (r) | .617 | .625 | .661 | .657 |
| SLOPE | .00129 | .00127 | .00128 | .00125 |
| ELASTICITY | .08 | .09 | .09 | .10 |

one year since the passage of HB 72, it must be noted that the changes are slight. And, regardless of the conclusion as to whether wealth neutrality is improving or declining, the correlation coefficients from both the simple and the multiple regression indicate that the relationship between wealth and revenue remains strong. Equal opportunity relative to monetary inputs seems to have improved little, if any, for the school children of Texas between 1983-84 and 1984-85.

The values associated with the slope and elasticity change so slightly from 1983-84 to 1984-85 that the magnitude of the relationship between revenue and wealth can be said to be small and constant between the two years.

While correlation coefficients indicate little if any improvement in wealth neutrality, reference to Table 3 will show that when revenue increases are viewed from the perspective of wealth deciles, an inverse relationship exists. Highest percentages of increases in revenue from 1983-84 to 1984-85 are found in the decile of districts with the lowest wealth per ADA, while the lowest increases are found for districts in the highest decile. It may be that wealth neutrality measures do not register improvements because property values in the lowest wealth decile districts have risen more sharply (21 percent) than those in the highest decile districts (10 percent) between 1983-84 and 1984-85, thus offsetting the inverse proportion of revenue increases.

In answering question 1.0, therefore, it may be concluded that positive changes have occurred in decreasing per-pupil revenue disparities between 1983-84 and 1984-85. However, the relationship between wealth and revenue remains approximately as strong in 1984-85 as it was in the year prior to the passage of HB 72. It is the researcher's theory that improvements, or lack thereof, may not be wholely attributable to the policy changes in HB 72. Changes may be associated with inflation in the level of dollars appropriated for, and distributed to school districts as state aid, as well as inflation of local ability in the form of increased taxable property values. It appears that wealthier districts continue to use their wealth advantage to add to their coffers considerable "local leeway" revenue that poorer districts are not able to match. Even the more equalized distribution of state aid in 1984-85 has failed to offset this advantage. Further research is needed to ascertain

the verity of these hypotheses.

2.0 What effect does the inclusion of debt service funds in the total revenues have on measures of both horizontal equity and wealth neutrality? With such a strong relationship between wealth and revenue per student, one might suspect that debt service revenue, raised on advantage of wealth as well as other factors of need and effort, might add considerably to the widening of the range of disparities and to the weakening of wealth neutrality. Such does not seem to be the case. While debt service income adds seven to eight percent to the total state and local revenues for the years in the study (see Table 6), comparable percentages of differences are not noted between the measures for either horizontal equity or equal opportunity when viewed with and without debt service funds (see Tables 1, 2 and 5).

Percentages of change for per-pupil revenues with debt service and those without are consistent, with the exception of the changes reported for the restricted range. This further indicates that the differences between revenues with and without debt service income are not great. The exception noted with the restricted range can, in part, be explained by the fact that when debt service money is excluded from this measure, the restricted range is already reduced, thus making a change from one year to the next appear smaller in relation to the range and coefficient of variation where the exclusion of debt service money increases the disparities being compared.

For both the 1983-84 and 1984-85 school years, the range of revenue per student was affected very little by the inclusion of debt service revenue. Such a minor difference is understandable when one looks at the the upper figure in the range for each year--it remains the same both with, and without debt service revenue included. The wealthiest school districts in the state are able to provide facilities and capital improvements without the need to incur long-term debt through the passage of bond issues. Poorer school districts, on the other hand, are obligated to turn to this source of revenue to finance construction and improvement of school facilities. This increases the lowest per-pupil revenue figures by 6 percent in 1983-85 and 5 percent in 1984-85, thus decreasing the total range. Information in Table 6 reinforces the view that the wealthy districts in the top 5 percent of a rank-ordering of districts on the basis of

TABLE 6 Debt Service Revenue

| | 1983-84 | 1984-85 |
|---|---|---|
| ALL DISTRICTS | 81% have debt $ | 77% have debt $ |
| BOTTOM 5% OF DISTRICTS [a] | 91% have debt $ | 94% have debt $ |
| TOP 5% OF DISTRICTS [a] | 47% have debt $ | 53% have debt $ |

[a]ranked by total revenue per ADA

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| | 1983-84 | 1984-85 |
|---|---|---|
| CHANGE IN RANGE FROM THAT W/O DEBT $ | -$103 | -$101 |
| CHANGE IN RESTR. RANGE FROM THAT W/O DEBT $ | +$450 | +$151 |
| % OF LOCAL REVENUE | 15% | 14% |
| % OF TOTAL STATE & LOCAL REVENUE | 8% | 7% |

% CHANGE IN TOTAL DEBT $ FROM 83-84 to 84-85 -6%

per-pupil revenue are much less likely to have debt service income included in their total revenues than are districts in the bottom 5 percent, or districts as a whole.

Although the restricted range, standard deviation of revenue per student and Gini coefficients calculated for 1983-84 and 1984-85 indicate slightly greater disparity, and thus greater inequity, when debt service revenue is included in the totals, measures of equal opportunity show mixed results in each year. Correlation coefficients indicate that the relationship between wealth and revenue is slightly stronger when debt service revenue is included for 1984-85, but slightly weaker when it is included for 1983-84. The differences between the coefficients with and without debt service is quite small, however.

The question of whether reliance on local district fiscal capacity to raise funds for facility construction increases the inequity of the state's school finance system cannot be answered solely from the data generated in this study. That is because the issue involves more that the amounts of dollars raised for debt service, and their effects on equity measures. Since school districts receive no state aid to offset facility construction or renovation costs, they must depend exclusively on their ability to raise tax revenue for this purpose. Thus, the equity issue becomes one of need and of tax effort, since low-wealth districts must tax themselves at significantly higher levels than high-wealth school districts in order to generate equal numbers of dollars for facilities.

The tax effort problem is exacerbated for low-wealth districts by the statutory limit on indebtedness that is placed on all districts. Districts may not assume bond indebtedness in excess of 10 percent of the assessed valuation of taxable property in their boundaries, nor may they set a rate for bond taxes in excess of $1.00 per $100 valuation of taxable property in the district. If need for facilities is high--as it is in many property-poor districts because of fast-growing student populations or deteriorating buildings--taxpayers in low-wealth districts must make greater effort than their high-wealth district counterparts to provide those facilities. And, even if taxpayers are willing to make an "extra effort" to meet facility needs through bond taxes, they may be prohibited from doing so by law.

Thus, the inequity is not directly related to the effect on equity measures of the distribution of debt service revenues among districts. It is, rather, a matter of the inequity in tax effort that must be required to meet facility needs.

3.0 Who were the "winners" and "losers" in the reallocation of financial aid resulting from HB 72 (relative to ADA, wealth deciles, and district setting? Table 3 reports average revenue increases for districts grouped by size (ADA) of from 13 to 25 percent. Larger districts, as a whole, did not fare as well as smaller ones in revenue increases. When districts are grouped by setting or type, the same pattern emerges. Major urban and central city districts gained approximately 15 percent in total revenues, while small non-metropolitan and rural districts gained 22 to 23 percent. Whether these gains are attributable more to changes in the state aid distribution mechanisms, or to changes in local tax base and/or tax effort is difficult to evaluate fully from data generated for this study. Data on Table 3 does indicate that state aid increases paralleled and exceeded total revenue increases for all three groupings of districts, suggesting that changes in state aid distribution mechanisms had a strong impact on the pattern of total revenue gains.

It is clearly evident that revenue increases were experienced by districts in almost perfect inverse relationship to wealth per pupil when viewed from the perspective of wealth decile groupings. It is highly possible that this phenomenon has occurred as a result of both state aid reallocations and property value inflation and reassessment. Taxable property values for the lowest wealth decile of districts increased 21 percent from 1983-84 (1981 values) to 1984-85 (1983 values), while taxable property values for the highest decile increased only 10 percent during the same period. Thus, not only did poorer districts receive more state aid than in previous years, but their local ability to raise supplementary revenue through a strengthened tax base increased at a more rapid rate than did that ability in the wealthier districts. Provisions in HB 72 which required a minimum (state average) level of taxing effort in order to receive full entitlements of equalization aid may have also encouraged low-wealth, low-taxing districts to increase tax rates, and thus increase locally generated revenue.

## Summary and Recommendations

Is the equity of the state's school finance system where it ought to be? The answer to that question depends on who is defining the "oughts". The Texas Legislature expressed a philosophy in HB 1126 , passed in 1975, that indicates its intentions regarding the financing of public education in the state. Phrases like "thorough and efficient system", "substantially financed through state revenue sources", "programs and services...that are substantially equal to those available to any similar student" and "notwithstanding varying local economic factors" (HB 1126, 1975, p. 877) seem to express an affirmation that horizontal equity and equal opportunity/wealth neutrality are both goals of the state system. In addition, the phrase from the bill, "student. .shall have access to programs and services that are appropriate to his or her educational needs" indicates an intent that vertical equity also be assured.

With multiplicity of goals, consistency in results is seldom assured. Gains on one equity front may result in losses on another. It seems clear from this study, however, that the state system has yet to reach an acceptable level of either horizontal equity or wealth neutrality. Policy changes in HB 72, along with other changes discussed or hypothesized above, have improved the equity picture vis-a-vis horizontal equity, but common sense tells us that a 743 percent variation in per-pupil revenues across districts in the state is still not indicative of adequate implementation of an "equal shares for equal students" philosophy. Rossmiller (1985) indicates that a restricted range ratio of 1.5:1 or lower would be acceptable evidence of an equitable system, while a ratio of 2:1 or higher indicates unacceptable inequity. Restricted range ratios calculated for this study--1.75 and 1.91, including and excluding debt service revenue for 1984-85--place Texas in a "gray area".

The continuingly strong correlation of district wealth and district revenue per student indicates that "varying local economic factors" still play a large part in determining the level of resources available to students. School districts in Texas vary widely in the amounts of dollars they have to provide for students' educations largely as a result of widely varying taxable property wealth bases.

One state goal for the school finance system does seem to have been reached during the 1984-85 school year, if "substantially financed through state revenue sources" can be interpreted as, at minimum, a 50 percent state share of total revenues received by districts. Table 7 shows that both with and without debt service revenue included in local revenue totals, the state share is now at or above the 50 percent level. It must be remembered, however, that federal revenue is not included in these totals, and that its inclusion would likely lower both state and local percentages.

The question of <u>why</u> equity has not yet reached what many could be considered to be acceptable levels is not addressed directly in this study, and is a prime topic for further research. It is possible that any one, or a combination of several, of the following factors could be contributing to current inequities:

(1) differential growth in local tax bases;

(2) differing levels of ability and willingness of districts to maintain high levels of tax effort;

(3) temporary continuation of "save harmless" provisions in present state school finance policy;

(4) categorical aid for special education, bilingual, compensatory or vocational education programs, experienced teacher allotments, or educational improvement/career ladder programs;

(5) special adjustments for small and sparse districts, and for districts with varying resource costs;

(6) tax relief provisions that can limit budget growth or affect property valuations;

(7) inability of equalized state education aid revenues to balance the revenue disparities caused by local wealth advantage;

(8) lack of caps on expenditure levels;

(9) lack of requirement that districts raise their Local Fund Assignment for the foundation program;

(10) lack of state revenue to fund a higher level

TABLE 7 State and Local Portions of Total Revenues

| | Local | | State | |
|---|---|---|---|---|
| | 1983-84 | 1984-85 | 1983-84 | 1984-85 |
| WITH DEBT SERVICE | 54% | 50% | 46% | 50% |
| WITHOUT DEBT SERVICE | 49% | 47% | 51% | 53% |

foundation program;

(11) incomplete measures of district revenue-generating capability;

(12) inefficiency of state support of such a large number of school districts, 43 percent of which have less than 500 students in average daily attendance.

Successful reform lies in knowing not just which portions of the state funding system, or other factors external to the system itself, actually increase or reduce revenue disparities. Successful reform also involves knowing how to best approach reducing the effects of negative factors and increasing the effects of positive factors. The contribution of further research in helping to provide answers for those dilemmas is also an essential one.

The results of this study provide only a partial picture of the current equity status of the school finance system in the state of Texas. Other issues as described above, particularly those related to questions of vertical equity, need to be addressed in future research. More longitudinal study of the system's equity needs to be attempted to determine trends in changes over a number of years. Such a study would, in all likelihood, reveal not only an important overall absolute change in the equity of the state system, but also a better picture of the impacts of particular state finance policies.

Given the present realities of state revenue restrictions and continuing pressures of pending school finance reform litigation, policy-makers in the state of Texas must continue to grapple with the thorny questions of how to reconcilliate a multiplicity of goals to achieve wealth neutrality, revenue/expenditure equality, local control, taxpayer equity, adequacy and efficiency in its school finance system. To complicate the picture, these goals exist in an environment of increasing expectations for excellence in the educational program--a potentially costly aspiration. State policy makers should capitalize on the current wave of interest in, and positive attitudes about, public education to make changes in the state's school finance program that will assure that equity gains depicted in this study are solidified and improved, and that principles for potential equity gains are addressed in present and future legislative, executive and judicial action.

## REFERENCES


Berne, R. and Stiefel, L. (1979). Concepts of equity and their relationship to school finance plans. Journal of Education Finance, 5, 36-54.

Coons, J., Clune, W., and Sugarman, S. (1970). Private wealth and public education. Cambridge, Massachusetts: Belknap Press of Harvard University Press.

Edgewood Independent School District, et al. v. Raymon L. Bynum, Commissioner of Education, et al. (Filed in State District Court of Travis County, Texas on May 23, 1984).

House Bill 1126. (1975). The Sixty-Fourth Texas Legislature.

Rossmiller, R. (1985). [Comments from personal interview with the author of this study on March 4, 1985].

U.S. Department of Education. (1984, January 5). State Eductional Statistics: State Performance Outcomes, Resource Inputs, and Population Characteristics, 1972 and 1982. Washington, D.C.: U.S. Government Printing Office.